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FEB 24 1978

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STATE OF ILLINOIS



ILLINOIS STATE GEOLOGICAL SURVEY

NATURAL RESOURCES BUILDING, URBANA, ILLINOIS 61801

TELEPHONE 217 344-1481

Jack A. Simon, CHIEF

137764

Box 1
Warrenville, Illinois 60555
(312) 393-1466
February 23, 1978

RECEIVED

Mr. Robert Wengrow
Illinois Environmental Protection Agency
Division of Land Pollution Control
33 S. Stolp
Aurora, Illinois 60504

APR 3 1978
E.P.A. - D.L.P.C.
STATE OF ILLINOIS

Dear Mr. Wengrow:

This is in response to your telephoned request of February 6, 1978, for information concerning hydrogeologic conditions at the Johns Manville plant in Waukegan, located in the S½ of Sec. 10, T., 45 N., R. 12 E., Lake County. The plant has both effluent lagoons and waste piles of tailings on the property from, among other products, the manufacture of asbestos shingles. The disposal area is located along the shore of Lake Michigan, on a low sand plain, and, very probably, there were beach ridges and sand dunes present here before the plant was constructed.

Regional maps and well logs in our files indicate that the surficial sand present in this area is from 30 to 50 feet thick and it overlies 50 to 75 feet of predominantly fine-grained, silty clay till. Beneath the till there is a thin layer of sand and gravel from 5 to 20 feet thick that overlies the Silurian dolomite bedrock.

We have very few well records for the half-mile area surrounding the disposal site and most of these records are very old. They show that in 1920 four dolomite bedrock wells were drilled on the Johns Manville property in the SE¼ of the SW¼ of Sec. 10, which locates them generally either immediately east and/or southeast of the plant buildings. The depth of these wells ranges from 108 to 132 feet. The thickness of the surficial sand encountered here was logged from 30 to 50 feet thick and the till below ranged from 47 to 75 feet thick. The sand above the bedrock was 14 to 18 feet thick. We also have record of two wells drilled in 1919 and one in 1928 for the Greiss-Pflager Tanning Company in the SW¼ of the NW¼ of Sec. 15. Two of these wells utilized the Silurian dolomite for water supply and are 95 to 100 feet deep; the third is a Mt. Simon Sandstone well that is 1670 feet deep. None of these wells describe the drift sequence here, but, depth to bedrock was 95, 100, and 112 feet, respectfully.

In addition to the old wells, we have record of one drilled in 1974, located in the NW¼ of the SW¼ of Sec. 3, along Keller Parkway. This is also a dolomite well, 173 feet deep.

As the effluent lagoons and the tailings piles are located immediately adjacent to Lake Michigan, which is the major ground-water discharge zone in the area, not only is the top of the zone of saturation very close to ground surface here, or only slightly above lake level, but, the disposal area is also in the ground-water discharge zone so ground-water movement here is almost exclusively lateral and upward, towards the lake. Therefore, there is no opportunity for contaminants from the effluent lagoons to move downward here into the underlying till or dolomite and cause contamination of any wells.

As ground water movement out of the lagoons is directly towards the lake, pollutants in the lagoons are migrating with the ground water in this direction. They are thus moving laterally through the surficial beach sand, which is dense and medium grained in this area (see enclosed log). As sand is an excellent filtering agent, some contaminants leaving the lagoons will be naturally filtered out by the sand before this water discharges into the lake. The sand, which is not only dense, but characteristically uniform in texture, should be effectively trapping asbestos fibers (probably at the base and sides of the lagoons) so they should not be making their way into the lake. Of course, there may be some types of pollutants present that are unaffected by filtering action, but, as I am not cognizant of the nature of all of the contaminants, I can make no judgment at this time concerning them. Although sand is an excellent, natural filter, its cation-anion exchange capacity for attenuating a variety of pollutants is very low. Pollutants that do enter Lake Michigan will be dispersed in such a large body of water, however, that they may be undetectable because of the large dilution factor.

Yours truly,

Jean I. Larsen

Jean I. Larsen
Associate Geologist
Hydrogeology and Geophysics Section
Northeastern Illinois Office

JIL/kv
encl:

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JUL 2 1978
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ILLINOIS GEOLOGICAL SURVEY, URBANA

Total

	Thickness	Top	Bottom
Bridge Boring #19 Section 2 Station 19845 140' Left Centerline			
Black cinders fill			4.5
Soft black peat			6
Medium dense fine to medium-grained gray sand loam			12
Dense medium-grained gray sand			14.5
Very dense medium-grained brown sand			17
Medium dense medium-grained brown sand			19.5
Very dense medium-grained brown sand			22
Hard gray silt loam			26.5
			T.D.

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FEB 24 1978

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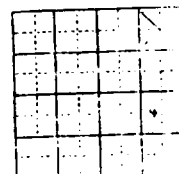
Typed by Engineering Geology.

Copy of Highway Division log filed
in Groundwater Section

NO ENVELOPE

Greenwood Avenue over EA 130 & 42

COMPANY	Illinois Division of Highways	
DATE	Greenwood Avenue Bridge	NO. 19
DATE DRILLED	April 6, 1964	COUNTY NO. 2642
AUTHORITY	Log by Division of Highways	
ELEVATION	520.91' G.L.	
LOCATION	NE NE	
COUNTY		



16-40-100